

Section II – Nutrient, Pest, IWM, RMS, and Sodbuster Planning

IWM Planning and Reporting Requirements

Minimum IWM Planning Requirements

1. When installing components of a system for a given field, the complete system shall be planned, and all planned practices and components in accordance with FOTG standards. This will insure the system applied adequately meets the conservation needs of the field.

For example, when planning a pipeline from the well to a center pivot for a gravity irrigation to sprinkler irrigation conversion the complete system shall be planned not just the pipeline component. The field shall be evaluated for the suitability for center pivot irrigation and the proper sprinkler selection (i.e. wetted diameter) for the given soil and slope conditions planned. The same would apply for component of surface irrigation systems and micro-irrigation systems (subsurface drip irrigation).

2. In order to achieve proper irrigation water management, a method to determine the gross irrigation depth applied to each field shall be planned.

The method(s) used to determine gross irrigation depth applied to each field could be very simple, or more sophisticated. Several methods may be used to determine the flow per furrow. This can include; furrow flumes, orifice plates or siphon tubes. Then by multiplying the individual furrow flow by the number of furrows irrigation flow rate can be determined. Weirs at field turnout or at headgates; measurement of well output by portable measurement device (at least once or twice a year during pumping season), flow meters with totalizers; weirs with staff gauge recorders, and other appropriate methods can be used to determine flow rate.

Rain gauges or equivalent catchments placed under a center pivots in appropriate areas can be used to directly determine depth applied.

A water supply that is not divided could be measured at the source. If water is divided (split) between two or more fields or landowners (i.e. group system) a method should be planned to determine the amount of water delivered to each field.

IWM Plans

IWM Planning is required for ALL irrigation water management practices, components and systems evaluations. For example flow measurement /flow meter assistance, irrigation scheduling assistance land leveling, surge valves, pipelines, reuse systems, etc). These minimum requirements apply to both cost share and non-cost share assistance, program and non-program assistance all the same.

The IWM plan shall be given to the cooperator with a copy of the complete plan kept in the cooperators' file.

Minimum IWM Plan Contents

- 1) Statement of Purpose or Goal
- 2) Conservation Plan Map
 - a) Irrigation Distribution System
 - b) Irrigation Application System
- 3) Soils
 - a) Soils Map
 - b) NASIS Soil Description or equivalent

- c) Available Water Holding Capacity (AWC) of the irrigated area (for each field assisted on)
- 4) Description of Scheduling
- 5) Crop Data
 - a) Description of Evapotranspiration
 - b) Seasonal Crop Water Use (for type of crop)
- 6) Gross Application Determination
 - a) Gross Irrigation Application determination for each field assistance is given.

Nebraska Conservation Planning Sheet No. 17 meets 1 and 3c through 6a if soil type and crop information highlighted for each field and gross application table is completed for each field.

Optional Content Information for IWM Plan

The following is an example of optional information which may included in IWM plans. Other information included not listed may also be included in these plans.

- 7) Evaluation and Recommendations
 - a) Engineering forms plus design data
 - b) Computer model documentation detailing application depth, efficiency, uniformity, deep percolation, runoff potential etc. (e.g. SRFR, CPED, FIRS, etc)
 - c) Supporting information
 - d) Listing of System Planning Alternatives
 - e) Evaluation results
- 6. References:
 - a) Nebguide
 - Texture Feel Soil Moisture
 - Water Measurement Method
 - b) others
- 8) Additional soils information
 - a) Detailed soil AWC by soil families
 - b) Infiltration information
 - c) Erosion computation
 - d) Maximum non erosive flow “Qmax”
 - e) PAM information
 - f) Leaching Requirements (Saline / Sodic soils)
 - g) Organic Matter information
- 9) Optional information for crops
 - a) Irrigation Water Requirements (IWR) Output
 - b) Rooting depth of crop
 - c) Maximum crop water needs by crop and/or crop stage
 - d) Recommended Management Allowed Depletion (MAD)
 - e) Actual & predicted ET information
 - f) Deficit irrigation information
 - g) Salinity and Sodicity Effects
- 10) Scheduling:
 - a) Agronomist
 - b) General Definition $QT=DA$
 - c) Irrigation Scheduling Methods
 - d) Description of soil moisture monitoring techniques and equipment

- 11) Water Supply
 - a) Water measurement techniques and equipment
 - b) Quality of water supply
 - c) Source Location
 - d) Water Delivery Schedule
- 12) Physical Features
 - a) Topographic information
 - b) Access roads, aboveground utilities, buried utilities, etc.
 - c) Drainage system
 - d) Presence of water table
- 13) Irrigation System:
 - a) Discussion of application methods
 - b) Farm Distribution Components
 - c) Operator Desires/Concerns
 - d) Design Alternatives
 - e) Pumping plant information
 - f) Energy Use and Conservation
 - g) O& M
 - h) System Capacity
 - i) Expected Efficiencies

Documentation Required for IWM

Cooperator documentation for IWM cost shared and required in a contract

A NE-Eng. 79A, NE-Eng. 80, Agronomist Report, or equivalent is required for all fields in the contract for all years scheduled.

Cooperator documentation for IWM not cost shared but required in a contract.

A NE-Eng. 79A, NE-Eng. 80, Agronomist Report, or equivalent is required for all fields in the contract for the first year scheduled. After the first year the documentation is required for one field only. All other fields will be certified meeting the IWM requirements by the cooperator. NRCS may decide which field should be documented in subsequent year.

Cooperator documentation for IWM or irrigation components cost shared under NSWCP /NRD programs.

Cooperator will follow NSWCP NC-17 or other NRD cost share program requirements.
NRCS will give cooperator NE-Eng. 80 (or Equivalent) and assistance on how to collect and document the require data.

Cooperator documentation for IWM not cost shared and not required in a contract.

Cooperator is not required to provide any IWM documentation, but the producer's own records should be adequate to ensure that irrigation water management is applied.

Cooperator documentation for cost shared irrigation components (e.g. surge valve, pipeline, etc.) without IWM cost share or required in a contract.

Cooperator is not required to provide any IWM documentation.

Reporting of IWM

Irrigation water saving shall be reported in PRMS for all assistance given which improves irrigation water efficiency.

PRMS has three performance measures: Irrigation Management Water Management Applied (449) in acres, Irrigation Practice Applied in acres, and Estimated Water Conserved in acre-inches.

Irrigation water Management Systems Applied shall be reported **only when a water management meets the criteria of the FOTG Irrigation Water Management Standard** for the irrigated field being reported. These acres are reported only one time for the cooperator and the particular irrigation system. It is reported in acres.

Irrigation Practice Applied shall be reported on acres that are benefited from the application of one or more of the irrigation practices 320, 388, 428, 430 436, 441, 442, 443, 447, 464, 552, and 587. These **acres may be reported only once during the reporting year** when practices are applied or improved. The acres may be reported in following years if additional practices are applied or improved. It is reported in acres.

Estimated Water Conserved shall be reported whenever and increase in irrigation efficiency is obtained on an irrigated field. The water conserved is reported in total acre-inches.

Documentation of the volume of water conserved shall be computed by one of the following:

- FIRS – using the before and after efficiency and the seasonal gross application to compute conversed water. These may be completed by each individual case or standardized for the various conservation practices.
- Actual measured savings
- Computed savings using computer simulation models and seasonal gross application.

Total volume of water conserved is computed by multiplying average acres inches saved by the total acres in the field. For example, computation from the FIRS program shows savings of 2-acre inches on a 127 acres center pivot. The total water saving reported is 254 acre inches (2ac.in. x 127 ac. = 254 ac. in.)

The amount of water conserved on a given field for a given increase in efficiency shall only be reported once. As addition increases in efficiency occur those additional amounts conserved may also be reported.